Extract tomato seeds

Preface

I've been working on a tomato project for a year now. I ordered the very weak but tasty variety Berner Rose (Solanum lycopersicum L) on the internet. I planted it in the spring and was able to harvest the first seeds a few days ago. I need these to refine them with another variety. But I won't write anything about it until I have implemented it. With biological projects you have to bring a lot of time and patience with you. In this article I describe how to harvest the seeds from a ripe tomato.

Materials

To be able to work at all we need a ripe tomato. We pick this tomato from the shrub we have planted ourselves. Purchased tomatoes cannot be reproduced in most cases, because they have been grown in this way by the large corporations. However, there are enough traders on the Internet who offer tomato seeds. These do not cost much and the planting is also not difficult. You can do this quite well with your children and teach them how to take care of a plant, as tomatoes need a lot of care and water. If you grow your own tomatoes, you should avoid fertilizers and let the plant grow naturally.

Otherwise we need a sharp kitchen knife, a preserving jar, a small spoon, sieve and blotting paper. These are all tools and materials found in the household and you don't have to buy anything extra for this project. Blotting paper is mostly found in primary school exercise books (if it is still used today at all). For a preserving jar you can also use a plastic can as a replacement. The tomato seeds don't stay in there for a long time and nothing gets moldy.

Realisation

First we cut the tomato in half. I do that on a sheet of paper. But you can also do it on a wooden board or the sideboard in the kitchen. Where there is space right now. There is not much to consider except that you should not cut yourself.

Then place the preserving jar in front of us and take the tomato in your left (or right) hand. With the right (or left) hand we take a spoon and scrape the innards out of the tomato. Everything comes into the glass except for the skin. We can eat them (if we have washed the tomatoes beforehand). I promise you that they will taste very delicious.

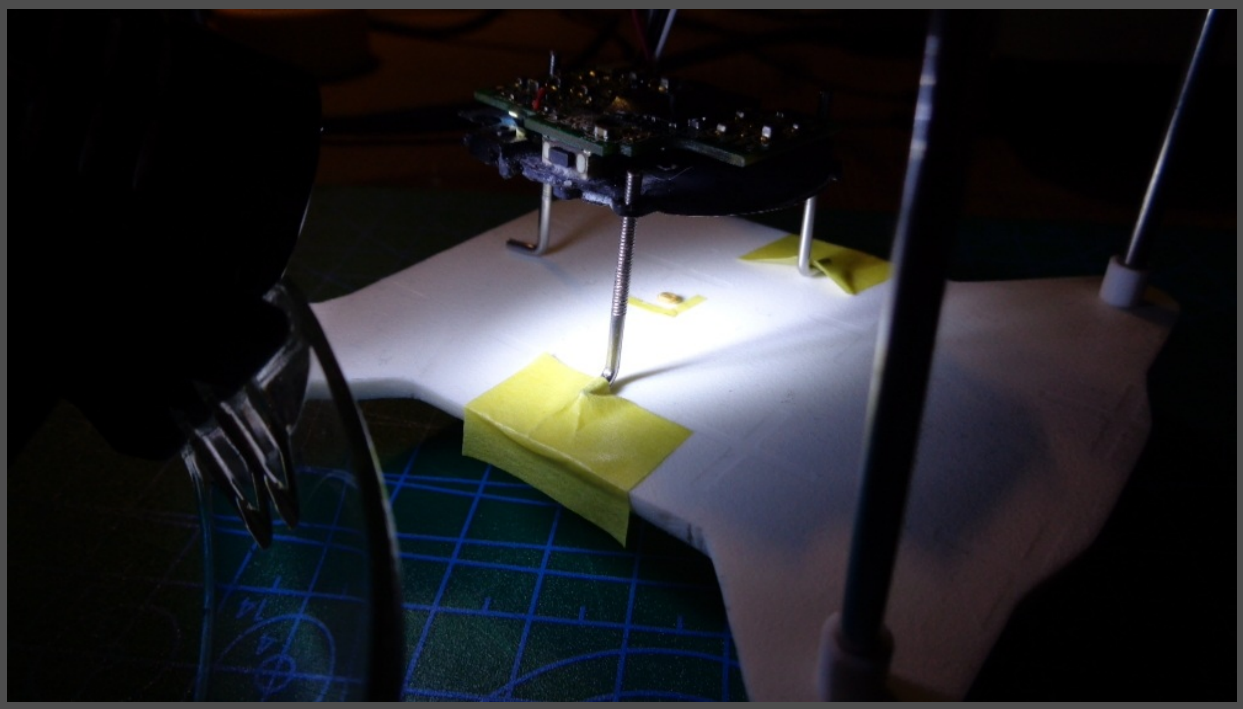
After we have scraped both halves we fill a little tap water into the glass. After three days the fruit pieces will float on top and the seeds will lie on the bottom. We put the glass in the fridge or in another cold dark place.

After three days we pour the tomato paste into a sieve and hold it in the sink. There we wash away so much of the pulp. A small teaspoon is very good for scraping. We take care not to crush the seeds and therefore work very carefully.

Now we can take as many seeds as possible out of the sieve and put them on the blotting paper. So that we can count later better how many seeds we have, we put them neatly in a row. We also write what kind of seeds they are, because they can last up to five years. However, after drying for 2-3 days, they must be packed in a dark paper bag. Next spring (2019) we will sow them again and cross them with another variety.

After the dry season

So far I have never extracted my own tomato seeds and wondered about some seeds that were a bit browner. These also had a coarser structure, like collected vegetables. I wondered if these seeds might develop worse plants. If one could check this more closely, I would be able to take the best seeds from a harvest and then continue working with them. But first I would have to observe a breeding to test how the plants develop. But before you can test something, you have to provide objects with numbers and data so that they can be compared later. Since I don't have a field or a larger greenhouse, I have to reduce my study to 25 seeds and hope to produce clear results. So the seeds have to be examined under my microscope first.



My Microscope is not quite finished yet, but it is enough to catalog tomato seeds. For this all get a number from 1-25. A photo, which was made with a webcam program and a small bag of my own. So I can store the selected tomato seeds without mixing them with other seeds. Working scientifically meant working as accurately as possible. Nowadays the method of scientific work is reserved for academics (and unfortunately they also differ much too much from civil scientists), but also interested citizens can acquire these methods to give their own work a firmer foundation. Whoever conducts a study and discloses the data can thus give other interested parties (or real scientists) the opportunity to conduct this study later for review. This is the only way to be sure that data is reliable and can be traced. This is a cornerstone of science, the other important cornerstone is curiosity and a question.

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Do tomato seeds that have brown spots grow worse than light ones and do factors such as heigh
width and weight also play a role in the yield of a new crop?
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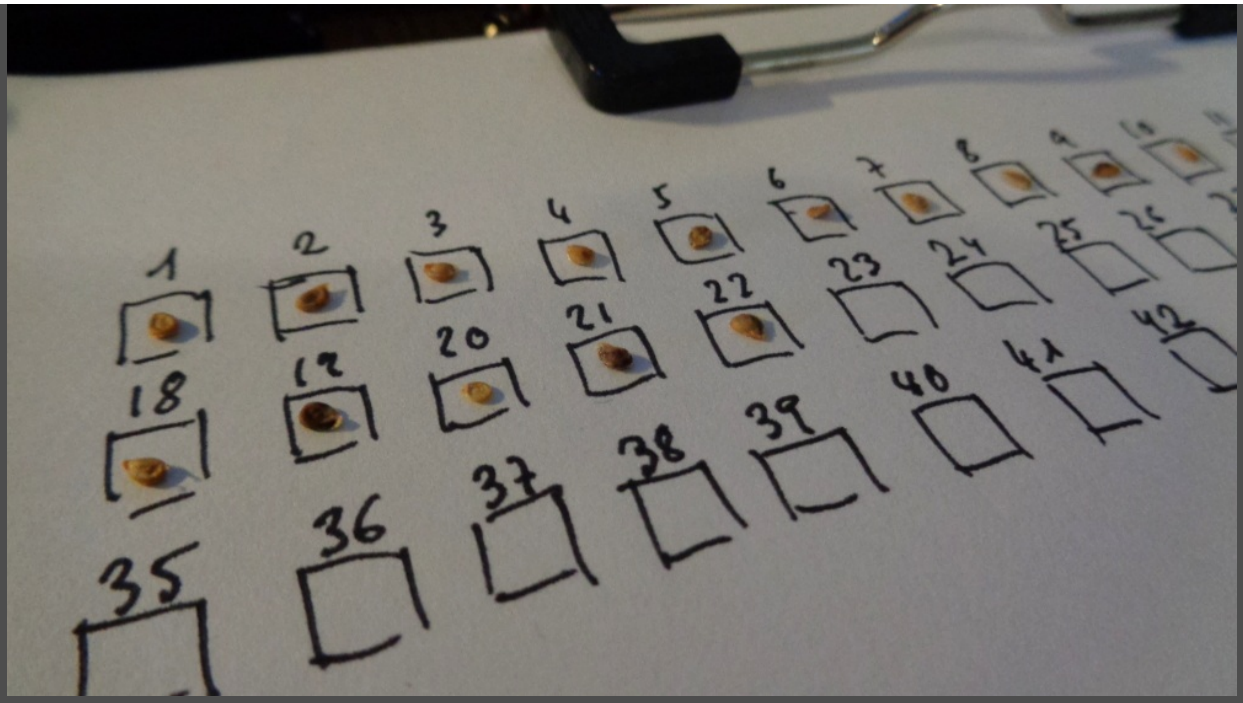


First we start by placing the tomato seeds on a sheet of paper and numbering them. On the photo I drew this by hand, but afterwards I created a template (pdf) . These can be used so that you don't always have to draw the boxes. So that the template can also be used by other projects, I have not entered any numbers. Maybe there are people who prefer a different numbering (e.g. with colored pencils). Then I put randomly selected tomato seeds in these fields and prepared them for the microscope. On the microscope I put yellow tape to make my work easier. So the photo is always in the same frame for the shot and I don't have to check every seed again and again if it is in the focus of the lens. Then you can photograph the seeds with a pair of tweezers. You should also wear latex gloves so that as little foreign matter as possible gets to the seeds.

The photographed and numbered seeds

- **No.:** 01
- **Height:** 3.0 mm
- **Width:** 2.3 mm

- **No.:** 02
- **Height:** 3.5 mm
- **Width:** 1.9 mm

- **No.:** 03
- **Height:** 2.7 mm
- **Width:** 1.8 mm

- **No.:** 04
- **Height:** 3.0 mm
- **Width:** 2.0 mm

- **No.:** 05
- **Height:** 2.8 mm
- **Width:** 2.0 mm

- **No.:** 06
- **Height:** 2.8 mm
- **Width:** 1.8 mm

- **No.:** 07
- **Height:** 3.0 mm
- **Width:** 2.3 mm

- **No.:** 08
- **Height:** 3.6 mm
- **Width:** 2.2 mm

- **No.:** 09
- **Height:** 3.4 mm
- **Width:** 2.1 mm

- **No.:** 10
- **Height:** 3.6 mm
- **Width:** 2.1 mm

- **No.:** 11
- **Height:** 3.1 mm
- **Width:** 2.3 mm

- **No.:** 12
- **Height:** 3.2 mm
- **Width:** 2.1 mm

- **No.:** 13
- **Height:** 2.9 mm
- **Width:** 2.1 mm

- **No.:** 14
- **Height:** 3.2 mm
- **Width:** 1.9 mm

- **No.:** 15
- **Height:** 3.2 mm
- **Width:** 2.0 mm

- **No.:** 16
- **Height:** 2.8 mm
- **Width:** 2.1 mm

- **No.:** 17
- **Height:** 2.7 mm
- **Width:** 2.1 mm

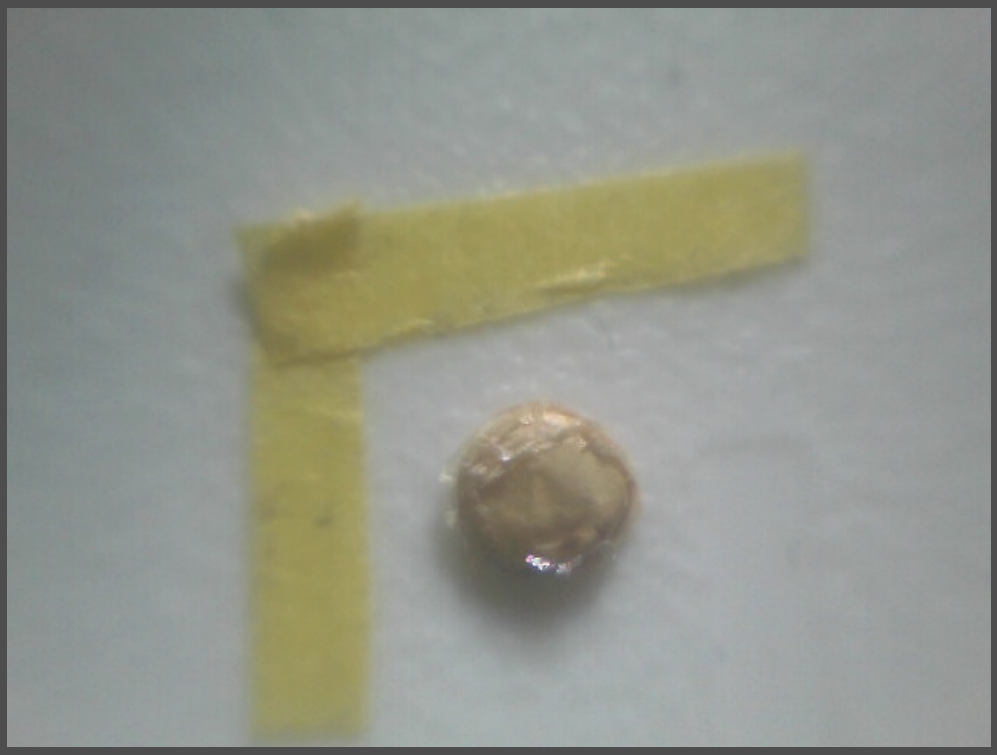
- **No.:** 18
- **Height:** 3.3 mm
- **Width:** 2.1 mm

- **No.:** 19
- **Height:** 3.0 mm
- **Width:** 2.3 mm

- **No.:** 20
- **Height:** 2.2 mm
- **Width:** 1.9 mm

- **No.:** 21
- **Height:** 3.4 mm
- **Width:** 2.2 mm

- **No.:** 22
- **Height:** 3.1 mm
- **Width:** 2.5 mm



- **No.:** 23
- **Height:** 2.8 mm
- **Width:** 2.4 mm

- **No.:** 24
- **Height:** 2.6 mm
- **Width:** 1.8 mm

- **No.:** 25
- **Height:** 2.8 mm
- **Width:** 1.9 mm

A photo already contains a lot of data about an object. For example, you can see if the brown parts of the tomato seeds are present or not. If the seed is rather small or large. Round, long or has an oval shape. Of course one can only estimate this, therefore we come to our second part of the data to be recorded. Size, width and weight. For this we need tools to measure. For the size and width we use a ruler or caliper. With these tools it is possible for us to catalogue every single seed exactly. Our methods for measuring are unfortunately limited, because we do not have more accurate tools. In a biological laboratory of a university there are much better (and more accurate) instruments. I must also say that I am only a trained computer scientist and have never completed a degree in biology. But that should never stop you from working scientifically, because in our time we have a very important scientific tool. The Internet. With it we can research, compare, ask questions, download scientific papers, look at stats ip. but the important thing is that we can acquire scientific methods with the help of a video, instructions and tutorials. What mistakes should I avoid, how do I keep a laboratory book and how do I defend my experiments against scientific attacks? After we have recorded all the data, we enter it under the photos. Something

that comes to my mind spontaneously is to attach a vertical and a horizontal ruler to the microscope, because this could save you one step in the future.